STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

PUTNAM COUNTY ENVIRONMENTAL COUNCIL, INC.; STEWARDS OF THE ST. JOHNS RIVER, INC.; and LINDA YOUNG,	)	
Petitioners,	)	
vs.	)	Case No. 01-2442
DEPARTMENT OF ENVIRONMENTAL PROTECTION and GEORGIA-PACIFIC CORPORATION,	)	
Respondents.	)	

RECOMMENDED ORDER

Pursuant to notice, this matter was heard before the Division of Administrative Hearings by its assigned Administrative Law Judge, Donald R. Alexander, on February 18-21, 25-28, and March 1, 12, 13, and 19, 2002, in Jacksonville, Tallahassee, and Palatka, Florida.

APPEARANCES

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STATEMENT OF THE ISSUES

The issues are whether Georgia-Pacific Corporation is entitled to the issuance of an industrial wastewater facility permit under the National Pollutant Discharge Elimination System program that would authorize it to discharge industrial wastewater to the St. Johns River in Putnam County, Florida, and whether Georgia-Pacific Corporation has met the statutory criteria for a related administrative order for the interim discharge to Rice Creek in Putnam County, Florida.

PRELIMINARY STATEMENT

This matter began on May 1, 2001, when Respondent, Department of Environmental Protection, published its Notice of Intent to Issue Permit Number FL0002763 and Administrative Order Number 039-NE to Respondent, Georgia-Pacific Corporation. If approved, the permit would authorize the construction and operation of a pipeline for a direct

discharge of effluent into the St. Johns River, unless Georgia-Pacific Corporation can demonstrate an ability to meet applicable water quality standards in Rice Creek under a compliance schedule established in the Administrative Order.

On May 25, 2001, Petitioners, Putnam County Environmental Council, Inc., Stewards of the St. Johns River, Inc., and Linda Young, filed a verified Petition for Formal Administrative Hearing challenging the proposed agency action on numerous grounds. The matter was forwarded to the Division of Administrative Hearings on June 15, 2001, with a request that an Administrative Law Judge be assigned to conduct a hearing. During the course of the final hearing, Petitioners requested leave to amend their Petition for Formal Administrative Hearing in numerous respects. This request was denied as being untimely, except for allowing Petitioners to amend paragraphs 17 and 67 of their original filing to address two minor changes formally proposed by Georgia-Pacific on January 29, 2002.

By Notice of Hearing dated July 10, 2001, a final hearing was scheduled on December 10-14 and 17-21, 2001, in Jacksonville, Florida. At the request of Linda Young, the hearing was continued to February 18-21, February 25-28, and March 1, 2002. Two further requests for a continuance filed by Linda Young were denied. Continued hearings were held on

March 12 and 13, 2002, in Tallahassee, Florida, and on March 19, 2002, in Palatka, Florida. The latter hearing also included public comment.

Prior to, during the course of, and after the final hearing, numerous discovery and procedural disputes arose. Most of these matters are addressed in separate interlocutory Orders entered by the undersigned. The rulings not memorialized by orders are found in the Transcript of the hearing.

At the final hearing, Petitioner Linda Young testified on her own behalf and presented the testimony of Dr. James L. Martin, an engineering professor at Mississippi State University and accepted as an expert; Kenneth A. Kohn, a Department wastewater permit specialist and accepted as an expert; Douglas Roberts, a Department environmental manager; Myra Carpenter, environmental superintendent for Georgia-Pacific Corporation; Dr. William T. Cooper, III, an associate professor of chemistry at Florida State University and accepted as an expert; Jerry Brooks, deputy director of the Department's Division of Water Resource Management; Dr. Christopher C. Koenig, a biology professor at Florida State University and accepted as an expert; Dr. Peter Suczy and John Hendrickson, environmental scientists at the St. Johns River Water Management District; Michael J. Hollingsworth, executive

director of the St. Johns Riverkeeper and accepted as an expert; and by telephone Dr. Joann Burkholder, a professor of aquatic botany at North Carolina State University and accepted as an expert. Also, she offered Young Exhibits 1-8, 8A, 9-12, 47, 72, 74, 132, 139, 189, 246, 320, 327, 333-336, 340, 387, 388, 391A, 391B, and 399-401. All were received except Exhibits 1-8, 74, 189, 246, 340, 387, 388, 391B, 400, and 401. Petitioners Putnam County Environmental Council, Inc. and Stewards of the St. Johns River, Inc. presented the testimony of Donald L. Loop, executive director of the Stewards of the St. Johns River, Inc.; Carol Mathews, a high school biology teacher and accepted as an expert; and Sandra Kokernoot, William David Nelson, and June T. Roberds, residents of Putnam County. Also, they offered Petitioners' Exhibits 1-6, 8, 9, 20, 21, and 24-31. All were received in evidence. Georgia-Pacific Corporation presented the testimony of Myra Carpenter, its environmental superintendent and accepted as an expert; Jerry Brooks, deputy director of the Department's Division of Water Resource Management and accepted as an expert; Dr. Glen Daigger, a professional engineer and accepted as an expert; John Hankinson, a former Environmental Protection Agency regional administrator; and Paul Paquin, a hydrogeologist and accepted as an expert. Also, it offered Applicant's Exhibits 1-21, 23, 24, 26-38, 40-42, 51, 55-63, 66-70, 73-86, 88-96,

101, 102, and 104. All exhibits were received in evidence. The Department of Environmental Protection presented the testimony of Jerry M. Owen, administrator in charge of the Department's Northeast District Office and accepted as an expert; James R. Maher, a Department industrial wastewater supervisor and accepted as an expert; and Dr. Wayne Magley, a Department environmental manager and accepted as an expert. Also, it offered Department's Exhibits 1-190, which were received in evidence. At the public comment portion of the hearing conducted in Palatka, Florida, on the evening of March 19, 2002, 38 members of the public testified. Finally, the undersigned took official recognition of the official state road map published by the Florida Department of Transportation, and Chapters 62-4, 62-160, 62-302, 62-520, 62-522, 62-550, 62-620, 62-650, and 62-660, Florida Administrative Code.

The Transcript of the hearing (twenty-three volumes) was filed on April 10, 2002. At the request of the parties, the time for filing proposed findings of fact and conclusions of law was extended to May 2, 2002. In addition, the parties were given the opportunity to file a response to any other party's filing. At the request of Linda Young, the time period for filing responses was extended to May 28, 2002. All

filings have been considered by the undersigned in the preparation of this Recommended Order.

FINDINGS OF FACT

Based upon all of the evidence, the following findings of fact are determined:

A. The Parties

1. Respondent, Department of Environmental Protection (Department), is the state agency authorized under Chapter 403, Florida Statutes, to regulate discharges of wastes to waters of the State. Under approval from the United States Environmental Protection Agency (EPA), the Department administers the National Pollutant Discharge Elimination System (NPDES) permitting program in the State. The Department also enforces specific water quality standards that have to be achieved in order to ensure protection of the designated uses of surface waters in the State.

2. Respondent, Georgia-Pacific Corporation (Georgia-Pacific), owns and operates a bleached and unbleached kraft pulp and paper mill in Putnam County, Florida. The plant presently discharges treated wastewater to Rice Creek, a Class III water of the State, and a tributary of the St. Johns River.

3. Petitioner, Putnam County Environmental Council, Inc. (PCEC), alleged in the Petition for Formal Administrative

Hearing (Petition) that it is a non-profit Florida corporation headquartered in Palatka, Florida. However, other than a statement by one witness that PCEC was incorporated on an undisclosed date prior to the hearing, PCEC failed to present any evidence to establish its corporate status or residency in the State of Florida. According to the same witness, the organization was created in an unincorporated status in 1991, and it currently has 65 members who use and enjoy the St. Johns River for recreational purposes.

4. Petitioner, Stewards of the St. Johns River, Inc. (SSJR), also alleged in the Petition that it is a non-profit Florida corporation with headquarters in Jacksonville, Florida. Like PCEC, SSJR failed to prove its corporate status or residency in the State of Florida. Although the number of members in SSJR is unknown, "many" of its members are boaters and "most" live along the St. Johns River.

5. Petitioner, Linda Young, is Southeast Regional Coordinator for the Clean Water Network and a citizen of the State of Florida. As such, she has standing to "intervene" in this action under Section 403.412(5), Florida Statutes.

6. In this complex case, the parties have presented extensive and conflicting evidence regarding the factual issues raised by the pleadings. In resolving the numerous conflicts in that testimony, the undersigned has accepted the

more credible and persuasive evidence, as set forth in the findings below.

B. The Applicant's Mill Operation

7. Georgia-Pacific's Palatka mill was built in the 1940's before the establishment of Department water quality standards and classifications. Because of the nature of the pulping process, the mill has not been able to fully meet water quality standards in Rice Creek because of poor dilution.

8. Georgia-Pacific receives wood chips from a sister facility and purchases residual chips from local wood products facilities. Those chips are separated into pine and hardwood, conveyed into the pulp processing facility, and loaded into digesters, that is, industrial-sized pressure cookers, which cook the chips for several hours. Pulp from the digesters goes to the brown kraft, bleached kraft, and tissue manufacturing facilities.

9. Water in the manufacturing process is used, re-used, and recirculated until it cannot be used again, at which point it is conveyed into a primary wastewater clarifier, which is used to settle out fiber and other settleable solids. Additional wastewater sources are collected in sumps located in the facility, which are discharged into the primary clarifier.

10. The underflow from the primary clarifier flows into a solids settling area (sludge pond) while the water from the primary clarifier passes into a secondary treatment system. The secondary treatment system uses aerobic and facultative biological treatment. Stormwater at the facility also flows into the treatment system.

11. The secondary treatment system consists of four ponds in series: Pond 1, 485 acres, aerated with over 1600 horsepower of aeration; Pond 2, 175 acres, with 140 horsepower of aeration; Pond 3, 130 acres, with 120 horsepower of aeration; and Pond 4, 100 acres. Pond 4 is a quiescent basin, used to settle solids in the wastewater before discharge.

12. The treatment system has a very long hydraulic detention time; once water enters the system, it remains there for 50 to 60 days. After treatment, a side stream of roughly 8,000,000 gallons per day of treated effluent is withdrawn, oxygenated with liquid oxygen, and discharged at two locations in Rice Creek: 3.4 miles upstream from the St. Johns River (Outfall D-001); and 2.4 miles upstream from the St. Johns River (Outfall D-002). Under low flow conditions, effluent from the Georgia-Pacific mill dominates the flow in Rice Creek.

C. The Application Process

13. Rice Creek is a small tributary of the St. Johns River, particularly in its upper reaches where Georgia-Pacific's effluent discharge occurs. Over the years, there have been exceedances of certain Class III water quality standards including specific conductance, color, and periodically whole effluent toxicity. Because of this, and during the permit review process, the Department began considering alternatives for mitigating or eliminating those existing concerns with the facility's discharge.

14. In October 1992, Georgia-Pacific applied to the Department for the renewal of its existing wastewater discharge permit. In June 1994, Georgia-Pacific submitted an application to the Department for the construction and operation of an industrial wastewater treatment and disposal system. This application included a request to relocate Georgia-Pacific’s existing discharge to the St. Johns River. Because Georgia-Pacific submitted timely permit applications, it is authorized to continue operations based on an "administratively extended permit."

15. In June 1994, Georgia-Pacific also applied to the EPA for a permit under the NPDES program. In October 1994, the EPA acknowledged receipt of a timely application for the renewal of Georgia-Pacific's existing NPDES permit, advising

Georgia-Pacific by letter that its permit was automatically extended and that continued operation was authorized in accordance with the existing permit and 5 U.S.C. Section 558(c).

16. On May 24, 1995, the Department advised Georgia-Pacific that the EPA had granted the Department the authority to administer the NPDES program and that its state permit and existing NPDES permit were deemed combined into one order.

17. In response to a Department request, in November 1995, Georgia-Pacific submitted to the Department an antidegradation review for the relocation of its discharge.

18. After Georgia-Pacific applied to the Department for a renewal of its NPDES permit, the Department directed Georgia-Pacific to provide alternatives that would ensure compliance with water quality standards. Georgia-Pacific submitted a proposal to construct a pipeline that would enable it to discharge its effluent to the middle of the St. Johns River. Under that proposal, Georgia-Pacific would achieve compliance with water quality standards as a result of greater dilution in the St. Johns River.

19. Based on a review of Georgia-Pacific's submittal, the Department determined that Georgia-Pacific could in fact achieve water quality standards by constructing a pipeline to the St. Johns River. Likewise, the EPA concluded that

Georgia-Pacific could receive a permit to discharge to the St. Johns River through a pipeline, without additional process improvements.

20. Although the Department concluded that compliance could be achieved solely by the construction of a pipeline, it began discussions with Georgia-Pacific and EPA in order to examine other approaches that might lead to compliance in Rice Creek. These discussions culminated in a decision that Georgia-Pacific would invest substantial funds in the installation of additional technology and also be assured of some ultimate means to achieve compliance with water quality standards.

21. On May 1, 2001, the Department issued a Notice of Intent to Issue an industrial wastewater permit, together with an Order Establishing Compliance Schedules Under 403.088(2)(f), Florida Statutes (the Administrative Order).

22. In late January 2002, Georgia-Pacific submitted a request to the Department asking for consideration of two changes to the proposed permit: first, a request to relocate a groundwater monitoring well; and second, a request to review the Department's proposed mixing zone in the St. Johns River for the transparency standard. The Department also proposes a minor change in permit conditions to allow approval of the bleach plant monitoring plan to take place within sixty days

after the issuance of the final permit. Both of Georgia-Pacific's requests were reviewed by the Department, and it has recommended that they be included in the proposed permit.

D. Technology-Based Effluent Limits and Water Quality-Based Effluent Limits

23. When considering a permit application such as the one here, the Department reviews the application to determine compliance with technology-based effluent limits (TBELs) and water quality-based effluent limits (WQBELs).

24. TBELs are minimum industry standards that all facilities must meet regardless of their discharge location. They are predominantly production-based, and they limit the mass of pollutants that may be discharged based on the mass of product produced. Those limits generally reflect EPA's assessment of the industry standard regarding what can be met in a given discharge. In the preparation of a permit, the Department practice is to first determine the TBELs that would apply.

25. In contrast, a WQBEL reflects how low the discharge must be (or how effective treatment must be) for a given parameter to meet water quality standards. Relief mechanisms such as mixing zones are inherent in WQBELs. A WQBEL is necessary only for those parameters for which there is a reasonable potential for the facility either to exceed the

water quality standard or come close to exceeding the standard.

26. As a matter of agency practice, the Department does not impose a limit unless there is a reasonable potential to exceed a standard. In order to determine whether there is such a reasonable potential for exceeding a standard, the Department will review past operations and other information it may have regarding the characteristics of the discharge.

27. For a discharge such as the one proposed in the present case, a "Level II" WQBEL is required. The Department's Point Source Section, with expertise in the field of water quality modeling, analyzes the Level II WQBEL.

28. Georgia-Pacific must meet certain technology-based standards, such as those set forth in the Cluster Rule. The Cluster Rule has been promulgated by the EPA and adopted by the Department and requires the installation of technologies to eliminate the use of elemental chlorine in the bleaching process. The Palatka facility far exceeds (performs better than) technology-based effluent limits.

29. In March 1998, the Department created a document titled "Level II Water Quality Based Effluent Limitations for the Georgia Pacific Corp. Palatka Mill" (the WQBEL Technical Report]. The WQBEL Technical Report has a typed notation on the title page reading "March 1998 -- Final." The WQBEL

Technical Report contained the following effluent discharge limitations:

> The following are the effluent limitations for the Georgia-Pacific Palatka mill discharge to the St. Johns River based upon results from the Level II WQBEL. Review comments from EPA Region 4 are included in the correspondence section.

Parameter	Limitation
Discharge	60 MGD Daily Maximum
BOD_5	
Summer (June 1 - November 30)	3,500 lbs/day maximum thirty day average
Winter (December 1 – May 31)	7,170 lbs/day maximum thirty day average
TSS	
Summer (June 1 - November 30)	5,000 lbs/day maximum thirty day average
Winter (December 1 – May 31)	10,000 lbs/day maximum thirty day average
Dissolved Oxygen	2.7 mg/l minimum
Specific conductance	3,220 umhos/cm daily maximum
Un-Ionized Ammonia Nitrogen	
Summer (June 1 - November 30)	.11 ug/l daily maximum
Winter (December 1 – May 31)	.13 ug/l daily maximum
Iron (Total Recoverable)	2.91 mg/l daily maximum
Cadmium (Total Recoverable)	3.46 ug/l daily maximum
Lead (Total Recoverable)	5.87 ug/l daily maximum
Zinc (Total Recoverable)	480 ug/l daily maximum

30. When the WQBEL Technical Report was approved in 1998, the Department's Northeast District Office did not

prepare a separate formal notice of approval. The WQBEL Technical Report was transmitted by memorandum from the Water Quality Assessment Section to the Department's Director of District Management for the Northeast District on April 13, 1998, where it remained on file. The WQBEL Technical Report complied with the plan of study previously approved by the Department, and it met the requirements of Rule 62-650.500, Florida Administrative Code.

31. Both the Department and EPA staff concurred with the approval of the WQBEL Technical Report. They agreed that the construction of a pipeline and the relocation of the discharge to the St. Johns River would yield a net environmental benefit without additional process improvements.

E. Upgrades Implemented and Required in the Proposed Agency Actions

32. As described more fully below, Georgia-Pacific has modified its production and treatment processes in such a manner as to improve its overall environmental performance. In installing some of those modifications, Georgia-Pacific undertook what was required by federal and state law. For others, Georgia-Pacific has exceeded what it was required to do under state or federal law.

33. To comply with the Cluster Rule, Georgia-Pacific eliminated two bleach plants and installed a new bleach plant,

one which uses chlorine dioxide as opposed to elemental chlorine. The implementation of this technology is primarily aimed at eliminating the mechanism for the formation of dioxin in the bleaching plant. Compliance with the Cluster Rule generally requires, among other things, conversion to an elemental chlorine-free bleaching system. Georgia-Pacific is in compliance with the Cluster Rule.

34. Under the Cluster Rule, Georgia-Pacific is required to sample for dioxin at its bleach plant, with a limit of under 10 picograms per liter.

35. Georgia-Pacific has experienced reductions in the color of its effluent as the result of the chlorine dioxide conversion as well as reductions in specific conductance. The reductions in specific conductance are particularly significant because Georgia-Pacific has decreased its effluent flow, which would ordinarily increase specific conductance in the absence of additional improvements.

36. After conversion to chlorine dioxide, Georgia-Pacific began monitoring for parameters defined by the Cluster Rule. In that monitoring, Georgia-Pacific has tested "non-detect" for dioxin and chlorinated phenolics. Specifically, Georgia-Pacific has monitored dioxin in its effluent, as well as within its process –- before dilution with other wastewater –- and the monitoring results at both locations are likewise

"non-detect" for dioxin. Furthermore, levels of chloroform and adsorbable organic halides (AOX) have been well within the limits imposed by the proposed permit and the Cluster Rule.

37. Georgia-Pacific has voluntarily agreed to install by April 15, 2006, an oxygen delignification system, or a like system that produces similar or better environmental benefits. Oxygen delignification is a precursor to bleaching, which removes lignins from the fiber before the product is bleached. This process is significant because lignin consumes chemicals, impedes bleaching, and prohibits achieving brightness targets in the bleach plant. The cost associated with the oxygen delignification system is $22,700,000. This commitment is reflected in the proposed Administrative Order and Permit. Oxygen delignification has been identified as having significant benefits in terms of reducing the color and specific conductance of effluent.

38. Georgia-Pacific voluntarily agreed to install by August 15, 2003, a new brownstock washing system to replace four existing brownstock washing lines. A brownstock washer is a piece of equipment that washes organics away from fiber, after pulping and before oxygen delignification. The cost of this equipment is approximately $30,000,000. This commitment is reflected in the Administrative Order and Permit. The new brownstock washers are not required by Department rules, but

they will be helpful in reducing the specific conductance of effluent.

39. Georgia-Pacific has also voluntarily agreed to install a green liquor dregs filter. This system would remove dregs from the effluent system and reduce specific conductance and color in the effluent. The cost of the green liquor dregs filter is $1,100,000. This commitment is reflected in the Administrative Order and Permit.

40. Under the proposed agency action, Georgia-Pacific is likewise required to install additional equipment for the implementation of its best management practices program to minimize leaks and spills in the process sewer. This equipment, including controls on the brownstock washer system, and the installation of a spill control system, pumps, and piping, has been installed at a cost of $7,100,000.

41. Georgia-Pacific has also optimized the performance of its treatment system through the relocation of its aerators in the treatment ponds and modifying its nutrient feed system. This has led to reduced levels of biological oxygen demand (BOD) in the discharge, as well as improved treatment for total suspended solids.

42. In addition, Georgia-Pacific has voluntarily installed a reverse osmosis system to recycle certain internal

streams, which in turn has led to reductions in specific conductance, at a cost of $3,300,000.

43. To comply with the proposed agency actions, Georgia-Pacific expects to expend a total of approximately $170,000,000 for upgrades for the purpose of producing environmental benefits. Additional money is earmarked for other environmental performance issues, such as water conservation.

44. Except for technology-based limits adopted by rule, the Department does not dictate how a facility achieves compliance with water quality standards. Georgia-Pacific demonstrated that its environmental performance is substantially better than required by technology-based limits.

45. Based on the foregoing, it is reasonable to find that Georgia-Pacific's commitments to process improvements will lead to a general improvement in water quality in the receiving waters.

F. Relocation of the Discharge

46. As noted above, because of the minimal dilution available in Rice Creek, Georgia-Pacific has never been fully able to achieve water quality standards in Rice Creek, a Class III water body. Rice Creek continues to exceed water quality criteria for specific conductance and color; historically, the

discharge had experienced exceedences for the chronic toxicity criterion.

47. Under present conditions, with Georgia-Pacific discharging to Rice Creek and Rice Creek flowing to the St. Johns River, elevated levels of color are experienced along the shoreline of the St. Johns River in the area of existing grass beds. Modeling shows that under current flow conditions from Rice Creek, those color effects are observed on the northwest bank near the confluence of Rice Creek with the St. Johns River.

48. If the discharge is relocated to the St. Johns River and discharged near the river bottom through a diffuser, it will beneficially change the distribution of color impacts both to Rice Creek and the St. Johns River. Color in Rice Creek will improve, returning to its background color of 100 to 150 platinum
cobalt units (pcu). Specific conductance within Rice Creek will also be markedly reduced.

49. Because the input will occur in the middle of the St. Johns River, with higher flows and greater turbulence, there will no longer be relatively highly colored water flowing along the shoreline. Therefore, the relocation will provide a significant benefit of moving highly colored water

away from grass beds and will mitigate against any existing effects on those grass beds.

50. It is beneficial to relocate discharges to the middle of a stream, as opposed to the edge of a shoreline, where effluent tends to hug the shoreline. Therefore, regardless of the process improvements, there will be a net environmental improvement by relocating the discharge to the middle of the St. Johns River

51. The discharge from the proposed diffuser will be comparatively benign, in comparison to the present flow from Rice Creek into the St. Johns River. This is because the effluent would not reach or hug the shoreline in such a scenario but rather would be diluted in rising to the surface, as well as by its lateral movement in the direction toward the river bank.

52. The relocation of the discharge to the middle of the St. Johns River will cause improvements through localized changes in concentrations near the diffuser and the confluence of Rice Creek and the St. Johns River.

53. Based on the foregoing, it is found that Georgia-Pacific’s proposed discharge into the St. Johns River will not result in water quality degradation, but will instead lead to a general improvement in water quality.

G. Proposed Conditions in the Permit and Administrative Order

54. Before certifying completion of the required manufacturing process improvements, Georgia-Pacific is required to submit to the Department a report on its ability to optimize the modifications, as well as a separate report which would determine whether Georgia-Pacific can meet certain limits that would enable a continuing discharge to Rice Creek. If the water quality improvements are sufficient to achieve standards in Rice Creek, the permit would be reopened and Georgia-Pacific would be required to maintain the present discharge location to Rice Creek. Otherwise, Georgia-Pacific would be authorized to construct the pipeline to the St. Johns River. The permit is drafted so that Georgia-Pacific will verify the need for mixing zones, as well as the dimensions of proposed mixing zones, after process improvements are complete.

55. The Administrative Order imposes interim effluent limitations during the compliance period described in that Order. The Administrative Order contains "report-only" conditions for certain parameters. For those parameters which do not have interim limits, there is no appropriate standard to apply because information on effluent and water quality conditions is incomplete. The Department also found it

unreasonable to impose interim limits that will be met only after Georgia-Pacific completes the improvements requested by the Department.

56. Under Department practice, it is reasonable to impose "report only" conditions for parameters when it is unclear whether the discharge for the facility presents a concern for potential exceedences of water quality standards. In addition, "report only" conditions are used when a facility is undertaking an effort to address problems for certain parameters during a period necessary to achieve compliance.

57. The proposed permit includes mixing zones in the St. Johns River for dissolved oxygen, total recoverable iron, total recoverable cadmium, total recoverable lead, un-ionized ammonia, turbidity, and specific conductance. The length of each of those mixing zones is 16.5 meters, that is, limited to the rise of plume. A mixing zone is also required for transparency, which will require a length of 734 meters.

58. Within 12 months after certifying completion of the manufacturing process improvements, Georgia-Pacific will be required to re-evaluate the need for mixing zones and effluent limits and re-open the permit as necessary to include final mixing zones, effluent limits, and monitoring requirements.

H. Compliance with Ambient Water Quality Standards

59. The Petition contends that Georgia-Pacific has not provided reasonable assurances that it would comply with the following standards: nutrients (paragraph 18); dissolved oxygen (paragraph 20); chronic toxicity (paragraph 21); total suspended solids (paragraph 23); iron (paragraph 25); and phenolic compounds (paragraph 26). Although no water quality standard is directly applicable, Petitioners also addressed the following water quality issues: biological oxygen demand (BOD) (paragraph 20); dioxin, "related compounds," chlorinated organics, AOX, and chemical oxygen demand (COD) (paragraph 22); color (paragraph 24); and total suspended solids (TSS), which is alleged to include total organic carbon (TOC) (paragraph 94).

60. Petitioners asserted that dioxin, chlorinated organics, TSS, and AOX are significant in considering compliance with the "free-from" standard in Rules 62-302.500(1) and 62-302.530. In determining whether water quality standards will be met, those allegations should only be considered in reference to those adopted standards for the "free-from" standard.

61. The effluent data establishes that Georgia-Pacific will consistently meet the proposed permit limits for discharge to Rice Creek. Georgia-Pacific's treatment facility

has the capacity to comply with the proposed permit limits for discharge to Rice Creek, and there is a very high degree of assurance that it has the capability to comply with those standards in the future. In addition, Georgia-Pacific's treatment facility is able to meet the WQBELs established for discharge into the St. Johns River.

62. Evaluation and modeling demonstrate that if a discharge to the St. Johns River is undertaken, the St. Johns River will meet Class III water standards at the edge of the mixing zone if Georgia-Pacific complies with its proposed effluent limits. Also, the effluent will meet all applicable effluent guidelines and technology-based standards adopted in the Florida Administrative Code. The effluent will not settle, form deposits, or create a nuisance, and it will not float as debris, scum, or oil. Finally, the effluent will not produce color, odor, taste, or other conditions so as to create a nuisance.

63. Georgia-Pacific performed an analysis to determine the effluent limits that would be necessary to achieve water quality standards. This analysis included water quality modeling, which is a method of summing up inputs and losses, calculating the amount of material in a system, and determining the concentration of a substance. The model was used to geometrically represent the St. Johns River, Etonia

Creek, and the reach of the St. Johns River within the study area, which extended from Buffalo Bluff (15 miles upstream of the confluence of Rice Creek and the St. Johns River) to Mile Point 50. Rice Creek enters the St. Johns River at Mile Point 74.

64. When a model is performed, the model will yield estimates or predictions of concentrations throughout a water body. Those predictions can be compared to field observations and measurements; if the model is done properly, the calculated numbers should agree with the measured numbers. Modeling is used to evaluate future conditions based on hypothetical future changes to the system. The modeling methods and advanced time-variable models employed by Georgia-Pacific's consultants were approved by the Department.

65. Georgia-Pacific prepared a plan of study to obtain field data in the St. Johns River for the purpose of assuring that the models would simulate observed concentrations of constituents. The Department approved that plan of study and published a notice of approval. The Department also approved the quality assurance project plan for the collection of water quality data in Georgia-Pacific's modeling efforts.

66. After approval of the plan of study and quality assurance project plan, Georgia-Pacific's consultants performed water quality surveys in November 1994 and May 1995.

The models employed by Georgia-Pacific's consultants were calibrated and produced the observed water quality results.

67. The proposed diffuser would be located about one foot from the bottom of the channel. As designed, the plume would leave the proposed diffuser and spread out, with the upper part of the plume going to the surface of the water. The plume model calculates the dilution at the centerline of the plume, where there would be a minimum of dilution. This method of using the centerline as a reference point leads to a conservative analysis, and it would require the Applicant to achieve more dilution than might otherwise be necessary to achieve water quality standards.

68. For regulatory purposes, the Department usually uses the maximum height of the rise of the plume to determine a mixing zone, the point at which concentrations along the centerline of the plume would level off. Because of that practice, for certain parameters where the required mixing zone is less than the distance of the rise of the plume, a decrease in effluent limits would not lead to a decrease in the size of the mixing zone.

69. Tidal actions will cause re-entrainment, that is, the movement of dissolved substances back into the plume area. This factor reduces the dilution factor that otherwise would

apply to the system. This factor is accounted for in modeling by tying in a diffuser computation to a water quality model.

70. The modeling employed by Georgia-Pacific assumes 7Q10 conditions, that is, a conservative assumption that flow is equal to the lowest one-week average for a ten-year period, where there is little dilution. The employment of this conservative method would minimize the probability of exceedences in the receiving water body. The projection employed by Georgia-Pacific's consultants was even more conservative because the 7Q10 flow rate is assumed to apply through a 60-day average flow, a condition that may never occur, and would not be expected to occur once in ten years. In contrast, the use of time-variable simulations would lead to less stringent permitting requirements.

71. The permit provides reasonable assurance that the construction, modification, or operation of the treatment system will not discharge or cause pollution in violation of Department standards.

72. The permit provides reasonable assurance that, based on the effluent limitations determined by the Department in the WQBEL Technical Report, water quality standards would be met outside the area of the proposed mixing zone for specific conductance, dissolved oxygen, un-ionized ammonia, iron, cadmium, lead, and zinc. Based on additional analysis as

reflected in Georgia-Pacific's proposed amendment to the draft permit, Georgia-Pacific would achieve compliance with the transparency standard with the mixing zone described in its proposed amendment, that is, with a total length of 734 meters.

73. The chronic toxicity criterion is a biological measurement which determines whether organisms are impaired by effluent. If impairment is demonstrated, the test does not indicate what component of the effluent is causing the effect. Georgia-Pacific is required to conduct testing for acute and chronic toxicity twice a year.

74. Current tests undertaken in May and October 2001 are representative of effluent conditions after Georgia-Pacific undertook conversion of the bleach plant to chlorine dioxide. Those tests demonstrate that Georgia-Pacific is in compliance with the acute and chronic toxicity criterion since the conversion to chlorine dioxide bleaching. Georgia-Pacific is also in compliance with the biological integrity standard, based on the most recent fifth-year inspection.

75. Because of the flow characteristics and the characteristics of pulp mill effluent, the pollutants associated with the effluent are not assimilated as the effluent travels from the point of discharge, through Rice Creek, to the St. Johns River. The particulates associated

with pulp mill effluent are so small or fine that they will remain in suspension and thus not settle out in Rice Creek. In addition, because Rice Creek is channelized, there is no sloping side that would enable the growth of vegetation that would filter the water. Furthermore, even if there was a sedimentation process occurring in Rice Creek, no additional sedimentation would occur after the system reaches an equilibrium point. Although Rice Creek does cause a small decrease in BOD through oxidation, Georgia-Pacific has compensated for that factor by the injection of oxygen in the effluent. Thus, the direct piping of effluent to the St. Johns River (as opposed to a discharge into Rice Creek, which flows into the St. Johns River) would not result in any significant increase in pollutant loading to the St. Johns River. In addition, the construction of a pipeline would take place only after additional technologies have been implemented to maximize pollutant reduction.

I. Compliance with the Reasonable Assurance Standard

76. Georgia-Pacific has provided reasonable assurances for the proposed permit to be issued for a discharge into the St. Johns River. This finding is based upon Georgia-Pacific's ability to meet the effluent standards described in the draft permit, and modeling results demonstrating that, with the proposed mixing zones for certain parameters, a discharge into

St. Johns River, as designed, will not result in a violation of Class III standards.

J. Mixing Zones

77. In Section H of their Petition, Petitioners challenged the proposed mixing zones set forth in the proposed Permit. Petitioners generally alleged that the proposed mixing zones were "enormous" and that they failed to comply with certain rules restricting mixing zones.

78. In their Petition, Petitioners articulated three theories to support the proposition that the mixing zones were illegal: first, that the mixing zones would include a nursery area of indigenous aquatic life, including beds of aquatic plants of the type listed in Rule 63-302.200(16); second, that the mixing zone, by itself, would lead to a violation of the minimum criteria in Rule 62-302.500; and third, that the mixing zones, or a combination of those mixing zones, would result in a significant impairment of Class III uses in the St. Johns River.

79. Petitioners were authorized to amend their Petition to add additional allegations to paragraphs 17 and 67 of their original Petition regarding the mixing zone. Under those amendments, Petitioners alleged that Georgia-Pacific's proposed amendment to the draft permit would (a) improperly expand the mixing zone; (b) fail to account for the length of

the diffuser; (c) improperly substitute "transparency" for "color"; and (d) prevent isolation of transparency impacts from color in the discharge. However, there is no evidence which ties those allegations to any regulatory standard that would affect the proposed agency action.

80. Petitioners also contended that color was a surrogate for chemical oxygen demand, as well as for substances that are alleged to cause chronic or acute toxicity. However, as shown by the testimony of Department witness Maher, the permit condition for "color" was a surrogate only for the transparency standard. No evidence to support a contrary inference was presented.

81. Petitioners also made general allegations that the proposed mixing zones are illegal, without a clear indication of what is deemed illegal about the mixing zones. Although the Petition includes a general argument in opposition to mixing zones, Petitioners were unable to suggest a legal basis for alleging that the mixing zones were illegal. For example, Petitioners alleged that certain mixing zones are enormous but failed to articulate why they are so enormous as to be illegal. They did not allege that the Department had erred by allowing a larger mixing zone than Georgia-Pacific should have received under applicable rules. Indeed, such a position would be antithetical to Petitioners' allegations that

Georgia-Pacific had failed to achieve water quality standards for a number of parameters. The accepted testimony establishes that Georgia-Pacific's proposed mixing zones will comply with Department rules. No persuasive evidence was presented to the contrary.

82. Because the effluent quality will differ from present conditions after completion of the process improvements, the proposed mixing zones will not be final until after process improvements have been made, the operation has been stabilized, and the mixing zones have been re-verified.

83. No mixing zones are authorized in the Administrative Order. The Administrative Order contains a table setting forth potential mixing zones that are used as a benchmark to determine whether Georgia-Pacific can meet water quality standards in Rice Creek. The table sets out a series of hypothetical mixing zones at 800 meters, that is, the maximum presumptive distance afforded without additional relief mechanisms. Because no mixing zones are proposed to take effect in Rice Creek, there can be no issue of "illegal" mixing zones in Rice Creek.

84. Within a range of potential discharge flows, from 20 MGD to 60 MGD, water quality standards will be met within the

area of the proposed mixing zones for all parameters for which mixing zones are required.

85. Mixing zones are allowed by Department rules and are considered a part of Florida water quality standards. In the context of the Department's permitting review, if a modeling analysis shows that the concentration of a pollutant in effluent is greater than the water quality criterion, the Department will determine if the amount of dilution in the receiving water is sufficient to assimilate the pollutants of concern. The Department will then determine either the length (in the case of a river) or area (in the case of an estuary) of a water body that would be necessary to achieve compliance through dilution. Based on chloride levels, the St. Johns River at the area of concern would not be considered an estuary under Department rules.

86. Each of the proposed mixing zones would be less than 800 meters in length (as allowed by Department rule) and less than 125,600 square meters in area (a limitation that would apply only if the area was an estuary).

87. The proposed discharge will comply with all minimum rule requirements with respect to mixing zones, such as those for dissolved oxygen, turbidity, and the absence of acute toxicity. Likewise, the proposed mixing zones will not impact any nursery areas for indigenous aquatic life.

K. Nutrient Issues

88. In Section I, Petitioners contested the Department's decision to not require effluent limits to prevent a violation of the narrative water quality criterion for nutrients. For reasons addressed in the undersigned's Order dated February 14, 2002, that issue is waived based because of Petitioners' failure to file a timely challenge to the WQBEL Technical Report. In addition, based on the findings set out below, Georgia-Pacific has provided reasonable assurances that it will not violate the narrative standard for nutrients. Further, the evidence shows that effluent limits for nutrients are not presently warranted.

89. Petitioners presented testimony that the St. Johns River may be nitrogen-limited or phosphorous-limited at different times of the year, which means that concentrations of one or the other would limit algae growth at different times of the year. Relative light levels, as well as the penetration of light, also affect algae growth.

90. Georgia-Pacific’s treatment system requires the addition of ammonia because ammonia or nitrate is a necessary nutrient for the growth of bacteria in the treatment system. Ammonia and nitrate are both nutrients. Although there can be a conversion from one form to the other, that conversion does not affect the net loss or gain of nutrients.

91. Although nutrient issues are of concern to water bodies, it is absolutely necessary in a biological treatment system to have sufficient nutrients for the operation of the system to treat parameters such as BOD. The Georgia-Pacific facility is achieving a high level of treatment while managing its system at a minimum level of nutrient addition.

92. Management of a treatment system requires attention not only to the influent and effluent, but also monitoring of conditions within the system itself to assure adequate treatment. Georgia-Pacific is continuing to refine its procedures for doing so.

93. The State has adopted what is referred to as the "5-5-3-1" (advanced wastewater treatment) limitation for municipal treatment plants that discharge to surface waters. This standard refers to five milligrams per liter for BOD, five milligrams per liter for suspended solids, three milligrams per liter for total nitrogen, and one milligram per liter for total phosphorous. This limitation has been in effect for many years and remains one of the most stringent state standards in the nation. Georgia-Pacific's facility would be in compliance with those standards for nitrogen and phosphorous.

94. Effluent from the Georgia-Pacific mill increases the concentration of total nitrogen in Rice Creek, relative to

background conditions. However, because of the relatively higher flow of the St. Johns River, when the load from the mill is transported to the St. Johns River, the increase in nitrogen concentration is so small as to be imperceptible.

95. Nitrogen loading from Georgia-Pacific's Palatka mill on a long-term average (prior to upgrades of its treatment plant) has been measured at 1,196 pounds per day. The average loading at Buffalo Bluff, which is far upstream of Rice Creek and the Georgia-Pacific Palatka mill, is 36,615 pounds per day. Additional nonpoint sources contribute approximately 12,000 pounds per day in the study area. Thus, the loading from the Georgia-Pacific mill represents a 2.4 percent increase in nitrogen levels on the St. Johns River, a difference that cannot be measured.

96. The largest point source of nutrients in the lower St. Johns River is the Buckman wastewater treatment plant in Duval County. That facility does not have nutrient limits on its discharge permit.

97. Rice Creek does not provide any treatment (as opposed to dilution) for nitrogen in Georgia-Pacific's effluent. A review of probability distributions for nitrogen concentrations upstream and downstream of Rice Creek demonstrated that Rice Creek had no influence on nitrogen levels in the St. Johns River.

98. Phosphorous concentrations from the effluent, if discharged to the St. Johns River, would dilute rapidly, decreasing to .2 milligrams per liter within the water column, five to six feet below the surface, after discharge from the diffuser, below the area in which light is absorbed at the surface of the water column.

99. Chlorophyll-A is a parameter that is typically used as a measure of phytoplankton in the water column. Concentration distributions for chlorophyll-A at Buffalo Point (upstream of Rice Creek) matched concentrations for the same parameter at Racey Point, a station far downstream of Rice Creek. This analysis confirms that the inputs coming into the St. Johns River System from Rice Creek do not have a significant influence on the water quality of the St. Johns River, with respect to nutrients.

100. With a discharge coming directly to the St. Johns River, and with nutrient loading being the same as from Rice Creek, the nutrient loading would not influence the St. Johns River.

101. The Department does not have sufficient information at the present to impose a nutrient limit on Georgia-Pacific. The draft permit accounts for this issue through a re-opener clause which would authorize a limit when that information is available, if such a limit is necessary.

M. Allegations Regarding "Deformities in Fish"

102. Section J of the Petition includes allegations that Georgia-Pacific failed to provide reasonable assurances regarding adverse physiological response in animals under Rule 62-302.530(62), and that Georgia-Pacific has failed to provide reasonable assurances that its discharge will not be mutagenic or teratogenic to significant, locally occurring wildlife or aquatic species, or to human beings, under Rule 62-302.500(1)(a)5.

103. Petitioners suggest that the permit cannot be granted as proposed because it lacks effluent limits for (unstated) substances that are alleged to create potential violations of the free-from standard. This argument is barred as a matter of law for the reasons stated in the Order dated February 14, 2002. In addition, based on the following findings, this argument has been rejected because Georgia-Pacific has met the reasonable assurances standard without effluent limits on those unstated (and unknown) substances that are alleged to cause violations of those rules.

104. Petitioners presented evidence that paper mill effluent in general contains chemicals which could cause the masculinization of the females in certain fish species, as well as hormonal effects in males. However, witness Koenig did not offer any testimony that Georgia-Pacific's effluent,

in particular, contained such chemicals. Dr. Koenig had collected no data and had not conducted any field studies in Rice Creek to support his testimony; rather, he relied on articles published by others and provided by Petitioner Linda Young.

105. In agency practice and interpretation of the free-from standard in Rule 62-302.530(62), Florida Administrative Code, the question of whether a change is adverse depends on the overall community or population of that particular species. Tellingly, Petitioners did not present any competent evidence, through Dr. Koenig's testimony or otherwise, that Georgia-Pacific's effluent presents the potential for adverse effects on the overall community or population of any species.

106. Dr. Koenig testified at length from his reading of studies performed by other scientists regarding changes in the hormone levels and gonadosomatic index (the relative weight of gonads) of fish in the St. Johns River in the vicinity of Rice Creek. In his testimony, Dr. Koenig relied on two published articles to address conditions in the vicinity of Rice Creek, both of which were primarily authored by M. Sepulveda.

107. One of those articles showed hormonal changes taking place in a laboratory study where largemouth bass were exposed to mill effluent. That study also showed a change in the gonadosomatic index in the subject fish. Dr. Koenig did

not offer any opinion that such changes would be adverse or that they would affect the reproduction of those fish.

108. The other study was a field study with samples of fish at various regions in the vicinity of Rice Creek. This study did not include any fish from Rice Creek, but did include fish from the confluence of Rice Creek and the St. Johns River, as opposed to reference streams. The study showed lower levels of hormones in fish from the area of that confluence, but also showed similar effects at a reference stream 40 kilometers away.

109. No testimony was presented to support the inference that the effects represented in the two studies were adverse, within the meaning of the free-from rule. Moreover, the data from those two studies were collected in 1996, 1997, and 1998, or before Georgia-Pacific converted its bleach plant to chlorine dioxide bleaching in March 2001. Therefore, Dr. Koenig had no data to support any theory that under current effluent conditions, Georgia-Pacific is producing or will produce compounds that would cause any changes of hormone concentrations in fish.

110. With respect to the phenomenon of fish masculinization in Rice Creek, Petitioners' experts had no data to support a competent opinion on this subject. To support his testimony, Dr. Koenig only read one article that

purported to demonstrate fish masculinization in 11-Mile Creek and the Fenholloway River, and one letter from an employee of the St. Johns River Water Management District [Young Exhibit 8A] that referred to "external anatomical anomalies" near Georgia-Pacific discharge points. The article attached to that letter and included in Young Exhibit 8A addressed data collected in Escambia County, and does not address conditions in Rice Creek.

111. Petitioners attempted to present the theory that the potential for endocrine disruption or fish masculinization resulting from paper mill effluent would violate the free-from standard. As a condition to issuance of the permit, the Department proposes to require Georgia-Pacific to obtain approval of a plan of study to analyze the potential for significant masculinization effects from the discharge. Under the proposed conditions, Georgia-Pacific is required to determine the minimum concentration at which such effects may be detected. By its terms, the proposed permit may be reopened to adjust effluent limitations or monitoring requirements if the masculinization study shows a need for them.

112. Department witness Brooks acknowledged a general concern for endocrine disruption resulting from paper mill effluent. In particular, Mr. Brooks referred to studies which

showed that paper mill effluent could cause the elongation of an anal fin in the females of certain fish species. However, Mr. Brooks observed that although this appeared to be a physiologic response, there was no evidence or reason to believe that this effect was an adverse effect.

113. Reports regarding masculinization, that is, the elongation of anal fins in female fish, are suspect because (among other reasons) the studies do not account for variances that would be expected based on the independent variables of sex, age, and growth. In any case, the data from those reports do not demonstrate significant, adverse effects in exposed populations. A critical and unbiased review of the published literature shows that impacts of masculinization are biologically interesting but preliminary in nature.

114. Department witness Maher observed that the masculinization effect occurs naturally, and that the Department's plan of study is intended to determine whether this natural phenomenon becomes problematic or is enhanced by activity at the mill. Initial information reviewed by the Department indicates that the phenomenon is no longer experienced when a mill converts to a chlorine dioxide (ECF) bleaching process, as Georgia-Pacific has done in converting to ECF.

115. According to witness Brooks, the observed effect known as "fish masculinization" is not confirmed to result from endocrine disruption.

116. The Department has concluded that it has reason to be concerned about the potential for fish masculinization. From the Department's viewpoint, it is not clearly understood what is causing this effect. It has been shown that there is a direct relationship between concentration (or dilution) and the observation of those effects. This conclusion is consistent with Dr. Koenig's testimony, which observed a decline in observed effects based on the dosage or concentration of effluent. The Department has reviewed evidence showing that, with dilution, the effect of fish masculinization "go[es] away."

117. In the Department's analysis of the fish masculinization issue in the present permit, the Department is requiring process improvements that would reduce this phenomenon, if it exists, in Rice Creek. In addition, if the discharge is relocated to the St. Johns River, the additional dilution would ameliorate the concern regarding fish masculinization, and the phenomenon will "go away." To give an even higher level of assurance that the resource will be protected, the Department is requiring a study to evaluate and confirm that the issue is resolved.

118. The process changes required in the permit, the potential for further dilution in the St. Johns River if it becomes necessary, and the evaluations required in the permit condition render it very likely that any potential for fish masculinization will be mitigated. Thus, to the extent that fish masculinization could be deemed a violation of the free-from standard, Georgia-Pacific has provided reasonable assurances that it will not cause the masculinization of fish in the St. Johns River.

119. Petitioners did not offer any credible evidence establishing that any specific compound or substance would cause the alleged effects of endocrine disruption or fish masculinization. Indeed, Dr. Koenig acknowledged that he was unable to find in his literature search the mechanism or chemical that is alleged to cause fish masculinization. Likewise, Petitioners were unable to suggest any concentration of that substance which would lead to those alleged effects.

120. Dr. Koenig expressed a belief that chlorinated organic compounds from the paper manufacturing process may be responsible for endocrine disruption. Dr. Koenig also opined that within the general process of paper manufacturing, the bleaching process in particular was a concern. To the extent that Dr. Koenig may have had a concern regarding endocrine disruption from his review of studies performed using data

from 1996 through 1998, it is reasonable to conclude that this concern is ameliorated by Georgia-Pacific's conversion to chlorine dioxide bleaching in March 2001.

121. There is no evidence to establish a relationship between the presence or absence of dioxin and fish masculinization.

N. Compliance with Dissolved Oxygen Standard (and BOD Concerns)

124. In Section K, Petitioners disputed whether Georgia-Pacific had provided reasonable assurance of compliance with the adopted dissolved oxygen standard. The proposed permit contains different permit limits for BOD for winter and summer, because the impacts of discharges are different during those parts of the year. Georgia-Pacific has shown a substantial downward trend for BOD.

125. The Georgia-Pacific facility discharges mass loadings of BOD at quantities which are much less than what is required to meet discharge standards. A review of effluent data shows that even for the worst period for performance, Georgia-Pacific's effluent was well below the proposed permit limits for BOD.

126. A review of BOD discharges over the period of January 2000 to August 2001 demonstrates a consistent ability of the facility to meet the proposed permit limits, as well as

a general trend of improvement that reflects Georgia-Pacific's upgrade of the treatment system.

127. Georgia-Pacific will meet the minimum standards for dissolved oxygen in mixing zones. With additional process improvements, Georgia-Pacific will also experience additional environmental benefits in the reduction of chemical oxygen demand.

N. Dioxin and "Related Compounds"

128. As to dioxin, Petitioners alleged in Section L of their Petition that Georgia-Pacific may discharge dioxin in concentrations that could cause a violation of the free-from standard.

129. The proposed permit includes a permit condition for a plan of study to assess levels of "TCDD" and "TCDF" in fish tissue in the receiving waters. Department witness Brooks was unaware of any regulatory authority to require fish tissue sampling for dioxin. Department engineer Kohn was also uncertain of any regulatory authority for the Department to test for dioxin in fish tissue. Mr. Kohn agreed with the proposition that when a proposed permit condition is not specifically authorized by rule or statute, the condition must be withdrawn if the applicant objects. However, in this case, Georgia-Pacific did not object to the inclusion of a permit

limit of .014 picograms per liter of dioxin in its final effluent.

130. As noted above, Georgia-Pacific established that under its current effluent conditions, following conversion to chlorine dioxide bleaching, the facility is "non-detect" for dioxin.

131. The Department does not have any adopted standards for fish tissue concentrations. Petitioners presented very little evidence of dioxin concentration in fish tissue following Georgia-Pacific's conversion to ECF bleaching, and they opposed the introduction of such data into evidence. A review of available data shows that there was not a statistically significant difference between the level of bioaccumulation of dioxin in fish tissue in Rice Creek versus a reference creek.

132. The Florida Department of Health has concluded, based on review of prior fish tissue data, that a fish consumption advisory for Rice Creek was not warranted.

P. Total Suspended Solids

133. In Section M, Petitioners have alleged that TSS in the effluent would cause various environmental problems. However, Petitioners did not allege that TSS in the effluent would lead to a violation of water quality standards, and they did not present any accepted testimony or other evidence to

support such a theory. There is no adopted water quality standard for TSS.

134. According to the WQBEL Technical Report, effluent levels of TSS are generally comparable to background levels in the St. Johns River.

135. The primary wastewater clarifier is designed to remove fiber or other settleable solids from the effluent before it travels to the secondary treatment system. Total suspended solids in Georgia-Pacific's effluent are primarily derived from biota in the treatment system, rather than fiber from the industrial process.

136. Georgia-Pacific has shown a substantial downward trend for TSS. The facility reliably discharges TSS at quantities which are much less than what is required to meet proposed effluent limits. A review of discharge data for TSS demonstrates that Georgia-Pacific would perform in full compliance with the proposed permit limits. Petitioners presented no evidence to the contrary. Petitioners likewise presented no evidence to quantify any impacts from TSS.

Q. Color, the Transparency Standard, and Related Issues

137. Petitioners have also alleged that the color in Georgia-Pacific's effluent would lead to nuisance conditions in violation of Rule 62-302.500(1)(a). However, they did not allege any potential violation of the one parameter

traditionally associated with effluent color: the Department's transparency standard.

138. Elevated levels of color in the effluent reduces the ability of light to penetrate into the water column, with potential effects on the growth of aquatic plants. This is translated into a "compensation point," that is, the water depth at which the light level reaches one percent.

139. The state transparency standard prohibits a discharge from causing a decrease in the compensation point of more than ten percent, relative to natural background.

140. The rate of decrease of light within a water column is related to increased color levels. Analysis performed by Georgia-Pacific's consultants shows that a ten percent change in compensation depth corresponds to a seventeen percent increase in color above natural background levels.

141. Under the proposed permit, color was used as a surrogate, or alternative measure, for compliance with the transparency standard. Color was not used as a surrogate for any parameter other than transparency.

142. Georgia-Pacific will, with additional process improvements, see additional environmental benefits in reducing the color of its effluent. For the purpose of the application, Georgia-Pacific's modeling analysis assumed that based on process improvements, its effluent would have a color

of 1202 pcu. EPA's technical team had opined that Georgia-Pacific would, with process improvements, achieve a reduction in color to 500 pcu. Georgia-Pacific had opined that the improvements would achieve a color of 1202 pcu. Department witness Owen opined that the color reduction would be in a range between those two figures. Petitioners did not present any contrary evidence as to the ability of additional process improvements to reduce effluent color. Accordingly, using the most conservative (least optimistic) figure, Georgia-Pacific has provided reasonable assurances that before a discharge to the St. Johns River would be authorized, it will reduce the color of its effluent to 1202 pcu.

143. The proposed permit takes into account the potential that Georgia-Pacific's process improvements will achieve greater improvements in color than anticipated. Under the proposed permit, the Department would reduce the size of the proposed mixing zone if Georgia-Pacific demonstrates that the color of its effluent is lower than projected.

144. The modeling analysis further demonstrates that based on a discharge to the St. Johns River, assuming an effluent color of 1202 pcu, the change in compensation depth is greater than ten percent in the vicinity of the proposed diffuser. A 734-meter mixing zone for transparency would be required for a discharge to the middle of the St. Johns River.

The required area for such a mixing zone is 64,000 square meters.

R. Antidegradation Review

145. In Section P, Petitioners have generally alleged that the Department failed to conduct a proper antidegradation analysis. More specifically, they alleged that the proposed discharge would reduce the quality of the receiving waters below the classification established for them. Because Georgia-Pacific presently discharges to Rice Creek, and because a separate relief mechanism (the Administrative Order) authorizes the discharge to Rice Creek, it appears that the antidegradation issues relate solely to the proposed discharge into the St. Johns River.

146. If the relocation had resulted in degradation of the receiving water, the Department would have regulatory authority in its Rule 62-4.242(1)(c) to consider whether Georgia-Pacific could minimize its discharge through other discharge locations, the use of land application, or reuse. However, Petitioners failed to allege in their Petition that the Department misapplied that regulatory authority. Moreover, under Department practice, when a new discharge or relocation of a discharge will result in an environmental benefit, it is not necessary to conduct a review of other discharge options.

147. The Department undertakes an antidegradation analysis in, among other scenarios, cases where a discharge will result in achievement of minimum water quality standards for a given designated use but will lead to an incremental lowering of water quality. The purpose of this analysis is to assure that the societal benefits of the discharge outweigh the cost of that incremental lowering.

148. The proposed permit will not lead to the increase in discharge of any parameter, and the permit is more stringent and adds additional parameters or limits. In addition, there is a trend of improved performance for the treatment system.

149. In the present case, the Department has concluded that the proposed project will result in a significant improvement in water quality by the reduction of pollutants associated with exceedences of water quality standards in Rice Creek. Regardless of whether the discharge remains in Rice Creek or is relocated to the St. Johns River, the proposed Permit and Administrative Order will lead to an improvement in water quality as opposed to a degradation of water quality.

150. Based on improvements with respect to specific conductance parameters, the ability to relocate the discharge into the middle of the St. Johns River where better mixing will occur (relative to the confluence of Rice Creek), and

anticipated improvements in grass beds, the proposed pipeline will lead to a net environmental benefit in the St. Johns River and Rice Creek.

151. The project as set forth in the proposed Permit and Administrative Order will be clearly in the public interest because it will result in full achievement of water quality standards and full compliance with the designated use of the receiving water body. The project will result in a substantial reduction in pollutant loading in Rice Creek and the St. Johns River, regardless of the whether the discharge will be located in Rice Creek or in the St. Johns River.

152. The Department adequately evaluated other discharge locations, alternative treatment, and disposal alternatives. Studies, including a land application pilot project, demonstrated that land application was not feasible based upon impacts to groundwater resources. In their Petition, Petitioners did not dispute the Department's analysis of those factors under applicable rules.

153. Given these considerations, it is found that Georgia-Pacific has provided reasonable assurances that it will meet water quality standards, and it is evident that Georgia-Pacific will not reduce the quality of the St. Johns River below its Class III designation. Further, the proposed

discharge will be clearly in the public interest for the purpose of antidegradation analysis.

154. Further, the proposed discharge into the St. Johns River is important to and beneficial to the public health, safety, and welfare, taking into account the policies set forth in Rules 62-302.100 and 62-302.300, Florida Administrative Code.

155. The proposed discharge into the St. Johns River will not adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats. Instead, the proposed discharge would provide a benefit to fish and wildlife, and their habitats.

156. No persuasive evidence was presented that the proposed discharge to the St. Johns River would adversely affect the fishing or water-based recreational values or marine productivity in the vicinity of the proposed discharge. Indeed, the record demonstrates a beneficial effect as to those factors.

157. The proposed discharge has not been shown to be inconsistent with the applicable Surface Water Improvement and Management Plan (SWIM plan). Rather, the evidence shows that the proposed discharge would promote the implementation of the applicable SWIM plan.

S. Monitoring Issues

158. Section Q in the Petition generally challenged the adequacy of proposed monitoring requirements. As to this issue, the monitoring conditions imposed in the proposed permit are sufficient to ensure compliance with the proposed permit. Petitioner Young's witness Gilbert agreed that the proposed monitoring conditions were adequate to determine the result of process changes, that the proposed monitoring conditions were comprehensive, and that those conditions were beyond what the Department normally required.

159. The Department does not propose to engage in water quality sampling at the end of the diffuser or at the edge of the mixing zone because of the technical difficulties associated with such an endeavor. Instead, the process for determining compliance is to determine the condition of the effluent and simulate water quality conditions of the receiving water body under low-flow conditions (when the river would be most vulnerable to pollution discharges). Such an approach is more protective because it eliminates variables that may not be representative of worst-case conditions.

160. The evidence shows that the size of Georgia-Pacific's facility renders it impracticable for Georgia-Pacific to compromise the integrity of sampling results, as suggested by Petitioners.

T. Flow Limitations

161. In their Petition, Petitioners also contended that the proposed agency action violates Rules 62-4.240(3)(a) and 62-620.310(9)(a) by failing to specify the volume of discharge or flows. Under Department practice, flow must be specified but is not necessarily limited. Flow was adequately specified in the proposed permit, where the facility is described as 40 MGD wastewater treatment facility with a 22 MGD expected average flow.

162. Volume limits are indirectly set through the establishment of a mixing zone and through mass loading limits in the permit, such as the loading limits for BOD and suspended solids. When flow is increased and the concentration of the effluent remains constant, the flow would be limited by the mass limits in the permit. Furthermore, the pipe and diffuser will have a hydraulic limitation, that is, a physical limitation on the amount that can physically be discharged. The pipeline and diffuser are hydraulically limited to 60 MGD based on the current design.

163. Over a ten-year period, Georgia-Pacific has shown a trend toward reduced effluent flow. For example, in 1991, Georgia-Pacific discharged just under 40,000,000 gallons per day (GPD). In 2001, the discharge was less than 24,000,000 GPD. As a result of water conservation measures, Georgia-

Pacific has been able to achieve a substantial reduction in effluent flow even when it experienced increased storm water flow into the treatment system.

164. Because of stormwater inputs into the treatment system, it is very difficult to set a flow limit on the discharge from a pulp and paper mill. Indeed, the Department does not typically impose volume limits on NPDES permits for pulp and paper mills. Where volume or flow limits are imposed on pulp and paper mills, they are necessary in order to assure compliance with a specific standard.

U. The Administrative Order

165. Georgia-Pacific has submitted plans and a reasonable schedule for constructing, installing, or placing into operation an approved pollution abatement facility or alternative waste disposal system. No contrary evidence was presented, and no alternative construction schedule was proposed by Petitioners.

166. In assessing a schedule to achieve compliance, the Department considered the time necessary to construct additional improvements as well as the reasonableness of the time period in light of Georgia-Pacific's capital investment. As part of this analysis, the Department also considered Georgia-Pacific's commitment to go beyond what they were legally required to do in environmental upgrades. The

schedule of compliance is reasonable, given the cost and magnitude of the improvements required of Georgia-Pacific.

167. Georgia-Pacific needs permission to continue its discharge to Rice Creek for a period of time necessary to complete research, planning, construction, installation, and operation of an approved and acceptable pollution abatement facility or alternative waste disposal system.

169. The time period described in the Administrative Order will enable Georgia-Pacific to maximize the operation of the process improvements in order to determine if the discharge can meet water quality standards in Rice Creek.

170. Given the cost and magnitude of the improvements required in the permit and Administrative Order, the schedule of compliance set forth in the Administrative Order is reasonable.

171. There is no present, reasonable alternative means of disposing of wastewater other than to discharge it into waters of the State. In their Petition, Petitioners contested the Department's general antidegradation analysis but did not allege that any alternative means of disposal were improperly overlooked.

172. The Department does not have specific regulatory authority to require facilities such as Georgia-Pacific to consider re-use as part of its antidegradation analysis, as it

does with domestic waste discharges. Nonetheless, the Department did look at re-use and land application and determined that they were not feasible alternatives. Although it was not specifically required to do so by rule, Georgia-Pacific had exhausted every reasonable means to re-use (rather than discharge) water from its facility.

173. Under earlier authorizations, Georgia-Pacific was not required to achieve standards for color, conductance, and chronic toxicity in Rice Creek.

174. The granting of an operation permit will be in the public interest. This is because Putnam County will suffer an adverse economic impact if the facility is shut down and there will be net environmental benefits achieved through compliance with the requirements set forth in the Permit and Administrative Order.

175. The Permit requires Georgia-Pacific to submit a written report to the Department if it appears that a mixing zone is needed for chronic whole effluent toxicity.

CONCLUSIONS OF LAW

176. The Division of Administrative Hearings has jurisdiction over the subject matter and the parties hereto pursuant to Sections 120.569 and 120.57(1), Florida Statutes.

177. Section 403.412(5), Florida Statutes, provides that in a proceeding such as this, "a citizen of the state

[including corporations] shall have standing to intervene as a party on the filing of a verified pleading." Because PCEC and SSJR have not proven that they are Florida corporations and citizens of the State, they lack standing to initiate a proceeding under that statute. Likewise, because the proposed agency action will result in environmental improvement, as opposed to harm, and Petitioners have failed to show that they will suffer an injury in fact, all Petitioners lack standing to bring this action under Section 120.569, Florida Statutes. See Lane v. International Paper Corporation, 24 F.A.L.R. 268, 278-280 (Fla. DEP 2001). Even so, each Petitioner has been given the right to fully contest the proposed agency action in an evidentiary setting. Accordingly, none of the Petitioners has been prejudiced by this adverse standing determination.

178. An applicant seeking an industrial wastewater discharge permit must provide reasonable assurances that its proposed discharge will not violate applicable statutory and rule standards of the Department. Rules 62-4.030 and 62-4.070 set forth the "reasonable assurance" permitting requirement.

179. "Reasonable assurance," in the context of environmental permitting, means a demonstration that there is a substantial likelihood of compliance with standards, or "a substantial likelihood that the project will be successfully implemented." Metropolitan Dade County, v. Coscan Florida,

Inc., 609 So. 2d 644, 648 (Fla. 3d DCA 1992). See also City of Newberry v. Watson Construction Company, Inc. et al., 19 F.A.L.R. 2067, 2080 (DER 1996). However, the reasonable assurance standard does not require an "absolute guarantee" of compliance with environmental standards. See Save our Suwannee v. Dep't of Envir. Prot. and Piechocki, 18 F.A.L.R. 1467, 1472 (DEP 1996).

180. The applicant bears the ultimate burden of providing reasonable assurances that it will meet the required standards. Fla. Dep't of Trans. v. J.W.C. Co., Inc., 396 So. 2d 778, 786-789 (Fla. 1st DCA 1981). If the applicant presents the necessary prima facie evidence, the burden shifts to the party objecting to the issuance of a permit, and the objecting party must prove "contrary evidence of equivalent quality." Id. at 789. This burden cannot be satisfied with speculative concerns about potential or possible adverse environmental effects. See Rowe v. Oleander Power Project, L.P. et al., 22 F.A.L.R. 1173, 1185 (DEP 1999); Chipola Basin Protective Group, Inc. v. Florida Chapter Sierra Club et al., 11 F.A.L.R. 467, 481 (DER 1988); J.T. McCormick v. City of Jacksonville et al., 12 F.A.L.R. 960, 971 (DER 1990).

181. Finally, the reasonable assurance standard only requires the applicant to address "reasonably foreseeable contingencies" in establishing entitlement. See Florida

Audubon Society v. South Florida Water Management District, 14 F.A.L.R. 5518, 5524 (SFWMD 1992); Rudloe v. Dickerson Bayshore, Inc. et al., 10 F.A.L.R. 3426, 3440-41 (DER 1988). Thus, as a general proposition, the applicant is not required to disprove all the "worst case scenarios" or "theoretical impacts" raised by the permit challengers in this permit proceeding. See Lake Brooklyn Civic Association, Inc., v. Florida Rock Industries et al., 15 F.A.L.R. 4051, 4056 (FLWAC 1993); Hoffert v. St. Joe Paper Co. et al., 12 F.A.L.R. 4972, 4987 (DER 1990).

182. Also relevant here is Section 403.051(2)(b), Florida Statutes, which precludes the Department from denying a permit application based on standards, criteria, or requirements that have not been promulgated as a rule. Port Antigua Townhouse Assn., Inc. v. Dep't of Envir. Protection et al., Case No. 00-0137 (DEP 2000), affirmed 806 So. 2d 490 (Fla. 3d DCA 2001). Therefore, the contention by Petitioners that Georgia-Pacific must comply with standards and permit conditions for various substances such as sediment, fish tissue, dioxin, total nitrogen, total phosphorus, and nutrients for which the Department has no promulgated standards or rules has been rejected.

183. Under 33 U.S.C. Section 1342(b) of the Clean Water Act, the EPA may approve a state's evaluation of an NPDES

application if the state adopts a permitting program which is substantially equivalent to the federal program. The Department has established such a program, with legislative authorization found in Section 403.0885(2), Florida Statutes, through the implementation of extensive rules. These rules supplement existing wastewater discharge rules, and collectively they are found in Chapters 62-4, 62-302, 62-620, 62-650, and 62-660, Florida Administrative Code. However, the bulk of the rules are found in Chapter 62-620, and if a conflict should arise between the rules, the rules contained within Chapter 62-620 supercede the other rules. See Rule 62-620.100(2).

184. The evidence supports a conclusion that the application meets all applicable requirements concerning its completeness contained in Rules 62-620.300, 62-620.301, 62-620.305, 62-620.310, 62-620.400, and 62-620.410. Further, all public notice and comment requirements contained in Rules 62-620.550, 62-620.550, and 62-620.555 have been met.

185. Using the principles cited above, it is concluded that Georgia-Pacific met its burden of demonstrating reasonable assurances that the construction, modification, or operation of the facility or activity will not discharge or cause pollution in contravention of Chapter 403, or cause or contribute to violations of water quality standards in the St.

Johns River, as required by Chapter 62-620, and specifically Rule 62-620.320.

186. Georgia-Pacific has also provided reasonable assurances that it meets all applicable criteria in Chapter 62-4, including the antidegradation policy found in Rule 62-4.242(1).

187. The more persuasive and credible evidence supports a conclusion that Georgia-Pacific has provided reasonable assurances that the proposed discharge will satisfy all applicable criteria in Chapter 62-302, including the free-from standards, general water quality critera, and applicable Class III fresh water quality standards and criteria.

188. Chapter 62-650 establishes the circumstances under which permit applicants may be required to conduct a comprehensive water quality data collection study for the purpose of setting WQBELs. As a part of the permitting process, the Department required Georgia-Pacific to conduct a WQBEL Level II study. Having complied with all applicable requirements for conducting such a study, Georgia-Pacific has provided reasonable assurances that it meets all requirements of this Chapter.

189. The more persuasive and credible evidence supports a conclusion that Georgia-Pacific has given reasonable assurances that it complies with all applicable requirements

of Chapter 62-660, including those effluent limitations for pulp and paper mills.

190. Because Georgia-Pacific provided reasonable assurances that its modifications to the mixing zone for color did not violate the mixing zone rule, or any other applicable rule, Georgia-Pacific has satisfied all criteria and procedures contained in Rule 62-620.320(1).

191. The issuance of the Administrative Order is governed by Section 403.088(2)(e) and (f), Florida Statutes. The evidence supports a conclusion that there is no present, reasonable alternative means of disposing of Georgia-Pacific's waste other than by discharging into waters of the state. The plans submitted and the schedule for construction, installation, and operation of the approved pollution abatement and alternative waste disposal system are reasonable and in the public interest. The Administrative Order meets all statutory criteria.

192. In summary, the requested permit and Administrative Order should be approved.

RECOMMENDATION

Based on the foregoing Findings of Fact and Conclusions of Law, it is

RECOMMENDED that the Department of Environmental Protection enter a final order (1) issuing proposed permit

number FL0002763 to Georgia-Pacific Corporation, as set forth in Department Exhibit 175, and with the change in the permit conditions as requested in Georgia-Pacific Exhibit 102 and proposed by the Department during the hearing, and (2) approving Administrative Order No. 039-NE as set forth in Department Exhibit 176.

DONE AND ENTERED this 3rd day of July, 2002, in Tallahassee, Leon County, Florida.

_____
DONALD R. ALEXANDER
Administrative Law Judge
Division of Administrative Hearings
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Filed with the Clerk of the
Division of Administrative Hearings
this 3rd day of July, 2002.

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NOTICE OF RIGHT TO SUBMIT EXCEPTIONS

All parties have the right to submit written exceptions within 15 days of the date of this Recommended Order. Any exceptions to this Recommended Order should be filed with the agency that will render a final order in this matter.